WHAT IS CLAIMED IS:

1. A block distortion removal method, comprising:

receiving a decoded image signal obtained by decoding code sequences which are obtained by dividing an image signal into plural blocks each comprising plural pixels and then coding the image signal, and obtaining a first difference in pixel values between two pixels across the boundary of adjacent blocks, and a second difference in pixel values between two pixels which belong to a block in the vicinity of the block boundary; and

correcting the pixel values of pixels in the vicinity of the block boundary, according to the values of the first and second differences.

2. A block distortion detection method, comprising:

receiving a decoded image signal obtained by decoding code sequences which are obtained by dividing an image signal into plural blocks each comprising plural pixels and then coding the image signal, and obtaining a first difference in pixel values between two pixels across the boundary of adjacent blocks, and a second difference in pixel values between two pixels which belong to a block in the vicinity of the block boundary; and

deciding that a block distortion occurs at the block boundary when the absolute value of the first difference is larger than a first threshold value and the absolute value of the second difference is smaller than a second threshold value, and deciding

that a stronger block distortion occurs at the block boundary as the first and second threshold values are smaller.

3. A block distortion detection method, comprising:

receiving a decoded image signal obtained by decoding code sequences which are obtained by dividing an image signal into plural blocks each comprising plural pixels and then coding the image signal using motion compensation for a unit including at least one block, and obtaining a first difference in pixel values between two pixels across the boundary of blocks/motion-compensation-units which is the boundary between adjacent blocks as well as the boundary between adjacent motion compensation units, and a second difference in pixel values between two pixels which belong to a block in the vicinity of the boundary of blocks/motion-compensation-units; and

deciding that a block distortion occurs at the boundary when the absolute value of the first difference is larger than a first threshold value while the absolute value of the second difference is smaller than a second threshold value, and the amount of motion in motion compensation units across the boundary of blocks/motion-compensation-units is larger than a third threshold value, and deciding that a strong block distortion occurs at the boundary when the first and second threshold values are small, and the amount of motion in motion compensation units across the boundary of blocks/motion-compensation-units is large.

4. A block distortion detection method as defined in Claim 3, wherein the amount of motion is the maximum value among the amounts of motion in the motion compensation units which are adjacent to each other.

5. A block distortion detection method comprising:

receiving a decoded image signal obtained by decoding code sequences which are obtained by dividing an image signal into plural blocks each comprising plural pixels and then coding the image signal, and obtaining a first difference in pixel values between two pixels across the boundary of adjacent blocks, and a second difference in pixel values between two pixels which belong to a block in the vicinity of the block boundary; and

performing detection of block distortion at the block boundary using the values of the first and second differences, by a detection method in which the volume of processing decreases as the resolution of the decoded image signal becomes larger.

6. A block distortion detection method comprising:

receiving a decoded image signal obtained by decoding code sequences which are obtained by dividing an image signal into plural blocks each comprising plural pixels and then coding the image signal using motion compensation for a unit including at least one block, and obtaining a first difference in pixel values

between two pixels across the boundary of blocks/motion-compensation-units which is the boundary of adjacent blocks as well as the boundary of adjacent motion compensation units, and a second difference in pixel values between two pixels which belong to a block in the vicinity of the boundary of blocks/motion-compensation-units; and

performing detection of block distortion at the boundary of blocks/motion-compensation-units, using the values of the first and second differences and the amount of motion in motion compensation units across the boundary of blocks/motion-compensation-units, by a detection method in which the volume of processing decreases as the resolution of the decoded image signal becomes larger.

7. A block distortion detection method as defined in Claim 5 or 6, wherein the reduction of the volume of processing is carried out by reducing the number of pixels to be used for detection of block distortion.

8. A block distortion detection method as defined in Claim 5 or 6, wherein the reduction of the volume of processing is carried out by reducing the number of strength levels of block distortion to be detected.

9. A block distortion detection method as defined in Claim 6,

wherein the reduction of the volume of processing is carried out by executing no detection of block distortion using the amount of motion when the resolution is high.

10. A block distortion removal method for removing the block distortion which is detected by the block distortion detection method according to any of Claim 2, Claim 3, Claim 5, and Claim 6, wherein the pixel values of pixels in the vicinity of the block boundary are corrected according to the result of the detection of block distortion.

11. A block distortion removal method as defined in Claim 10, wherein the correction of pixel values is carried out using a filter having different characteristics according to the strength levels of block distortion.

12. A block distortion removal method as defined in Claim 10 wherein, after the pixels in the vicinity of the boundary are subjected to a predetermined filtering, the correction of pixel values is carried out by using pixel values which are obtained by performing weighted-averaging on the pixels of the decoded image and the filtered pixels, according to the strength of the block distortion.

13. A block distortion detection apparatus comprising:

an image decoder for

receiving code sequences which are obtained by dividing an image signal into plural blocks each comprising plural pixels and then coding the image signal using motion compensation for a unit including at least one block,

decoding the code sequences to generate a decoded image signal, and

extracting a motion vector which is used for the motion compensation at the decoding; and

a pixel value inspector for

receiving the decoded image signal,

obtaining a first difference in pixel values between two pixels across the boundary of adjacent blocks, and a second difference in pixel values between two pixels which belong to a block in the vicinity of the block boundary,

deciding that block distortion occurs at the block boundary when the absolute value of the first difference is larger than a first threshold value and the absolute value of the second difference is smaller than a second threshold value, and

deciding that a stronger block distortion occurs as the first and second threshold values are smaller.

14. A block distortion detection apparatus comprising:

an image detector for

receiving code sequences which are obtained by dividing

an image signal into plural blocks each comprising plural pixels and then coding the image signal using motion compensation for a unit including at least one block,

decoding the code sequences to generate a decoded image signal, and

extracting a motion vector which is used for the motion compensation at the decoding;

a pixel value inspector for

receiving the decoded image signal,

obtaining a first difference in pixel values between two pixels across the boundary of blocks/motion-compensation-units which is the boundary between adjacent blocks as well as the boundary between adjacent motion compensation units, and a second difference in pixel values between two pixels which belong to a block in the vicinity of the boundary of blocks/motion-compensation-units, and

deciding that block distortion occurs at the boundary of blocks/motion-compensation-units when the absolute value of the first difference is larger than a first threshold value and the absolute value of the second difference is smaller than a second threshold value;

a motion vector inspector for

receiving the motion vector, and

deciding that block distortion occurs when the amount of motion in motion compensation units across the boundary of

blocks/motion-compensation-units is larger than a third threshold value; and

a block distortion decision unit for finally deciding whether block distortion occurs or not, on the basis of the results of detection of block distortion by the pixel value inspector and the motion vector inspector.

15. A block distortion detection apparatus as defined in Claim 14, wherein:

the pixel value inspector decides that a stronger block distortion occurs as the first and second threshold values are smaller; and

the motion vector inspector decides that a stronger block distortion occurs as the amount of motion is larger.

16. A block distortion detection apparatus as defined in Claim 15, wherein the amount of motion is the maximum value among the respective amounts of motion in the motion compensation units which are adjacent to each other.

17. A block distortion detection apparatus comprising:

an image decoder for

receiving code sequences which are obtained by dividing an image signal into plural blocks each comprising plural pixels and then coding the image signal using motion compensation for a

unit including at least one block,

decoding the code sequences to generate a decoded image signal, and

extracting a motion vector which is used for the motion compensation at the decoding, and the resolution of the decoded image signal;

a resolution decision unit for deciding, among a plurality of predetermined ranges, a range where the resolution of the decoded image signal belongs;

a pixel value inspector for

receiving the decoded image signal,

obtaining a first difference in pixel values between two pixels across the boundary of adjacent blocks, and a second difference in pixel values between two pixels which belong to a block in the vicinity of the block boundary, and

deciding that block distortion occurs at the block boundary when the absolute value of the first difference is larger than a first threshold value and the absolute value of the second difference is smaller than a second threshold value;

a motion vector inspector for

receiving the motion vector, and

deciding that strong block distortion occurs at the block boundary when the amount of motion in motion compensation units across the block boundary is larger than a third threshold value; and

a block distortion decision unit for finally deciding whether block distortion occurs or not, on the basis of the results of detection of block distortion by the pixel value inspector and the motion vector inspector;

wherein, as the resolution of the decoded image signal, which is decided by the resolution decision unit, increases, the volume of processing by at least one of the pixel value inspector and the motion vector inspector decreases.

18. A block distortion detection apparatus comprising:

an image detector for

receiving code sequences which are obtained by dividing an image signal into plural blocks each comprising plural pixels and then coding the image signal using motion compensation for a unit including at least one block,

decoding the code sequences to generate a decoded image signal, and

extracting a motion vector which is used for the motion compensation at the decoding, and the resolution of the decoded image signal;

a resolution decision unit for deciding, among a plurality of predetermined ranges, a range where the resolution of the decoded image signal belongs;

a pixel value inspector for

receiving the decoded image signal,

obtaining a first difference in pixel values between two pixels across the boundary of blocks/motion-compensation-units which is the boundary between adjacent blocks as well as the boundary between adjacent motion compensation units, and a second difference in pixel values between two pixels which belong to a block in the vicinity of the boundary of blocks/motion-compensation-units, and

deciding that block distortion occurs at the boundary of blocks/motion-compensation-units, when the absolute value of the first difference is larger than a first threshold value and the absolute value of the second difference is smaller than a second threshold value;

a motion vector inspector for

receiving the motion vector, and

deciding that block distortion occurs at the boundary, when the amount of motion in motion compensation units across the boundary of blocks/motion-compensation-units is larger than a third threshold value; and

a block distortion decision unit for finally deciding whether block distortion occurs or not, and the strength of the block distortion, on the basis of the results of detection of block distortion by the pixel value inspector and the motion vector inspector;

wherein, as the resolution of the decoded image signal, which is decided by the resolution decision unit, increases, the volume

of processing by at least one of the pixel value inspector and the motion vector inspector decreases.

19. A block distortion detection apparatus as defined in Claim 17 or 18, wherein the reduction of processing is carried out by reducing the number of pixels to be used for detection of block distortion.

20. A block distortion detection apparatus as defined in Claim 17 or 18, wherein the reduction of the volume of processing is carried out by reducing the number of strength levels of block distortion to be detected.

21. A block distortion detection apparatus as defined in Claim 17 or 18, wherein the reduction of volume of processing is carried out by executing no detection of block distortion using the motion vector when the resolution is high.

22. A block distortion removal apparatus for removing block distortion detected by the block distortion detection apparatus according to any of Claims 13, 14, 17, and 18, comprising:

a block distortion remover for receiving the decoded image signal and the result of block distortion detection, and correcting the pixel values of pixels of the decoded image signal in the vicinity of the boundary, according to the result of block

distortion detection.

23. A block distortion removal apparatus as defined in Claim 22, wherein the correction of pixel values is carried out using a filter having different characteristics according to the strength levels of the block distortion.

24. A block distortion removal apparatus as defined in Claim 22 wherein, after the pixels in the vicinity of the boundary are subjected to a predetermined filtering, the correction of pixel values is carried out using pixel values which are obtained by performing weighted-averaging on the pixels of the decoded image and the filtered pixels, according to the strength of the block distortion.